

WHAT IS CLAIMED IS

1. A method of formation of a capacitor forming part of an electric circuit when producing a circuit board with that electric circuit built in, including the steps of:

forming at a scheduled position for formation of the capacitor of the circuit board in the process of production a bottom electrode layer comprised of at least one type of valve metal selected from the group comprised of aluminum, tantalum, niobium, tungsten, vanadium, bismuth, titanium, zirconium, and hafnium;

forming on said bottom electrode layer a dielectric layer comprised of an oxide of at least one type of valve metal selected from said group; and

integrally forming on said dielectric layer a solid electrolyte layer comprised of an organic semiconductor and a top electrode layer comprised of metal on top;

said step of integrally forming on said dielectric layer said solid electrolyte layer and top electrode layer including the steps of:

making one surface of the top electrode metal foil carry powder of said organic semiconductor by compression bonding and

forming a solid electrolyte layer comprised of said organic semiconductor sandwiched between said metal foil and said dielectric layer and closely bonded to the two by thermo compression bonding of organic semiconductor powder carried by compression bonding on said dielectric layer through said metal foil.

2. A method of formation of a capacitor as set forth in claim 1, further comprising forming on said bottom electrode layer a plurality of parallel dielectric layers and integrally forming on each of the individual dielectric layers a solid electrolyte layer comprised of an organic semiconductor and a top electrode layer comprised of metal on top.

3. A method of formation of a capacitor forming part of an electric circuit when producing a circuit board with that electric circuit built in, including the steps of:

forming at a scheduled position for formation of the capacitor of the circuit board in the process of production a bottom electrode layer comprised of at least one type of valve metal selected from the group comprised of aluminum, tantalum, niobium, tungsten, vanadium, bismuth, titanium, zirconium, and hafnium;

forming on said bottom electrode layer a first dielectric layer comprised of an oxide of at least one type of valve metal selected from said group;

integrally forming on said first dielectric layer a solid electrolyte layer comprised of an organic semiconductor, a second dielectric layer comprised of an oxide of at least one type of valve metal selected from said above group, a second layer of at least one type of valve metal selected from said above group, and a top electrode layer comprised of metal on top;

said step of integrally forming on said first dielectric layer said solid electrolyte layer, second dielectric layer, valve metal second layer, and top electrode layer including the steps of:

forming on one surface of the top electrode metal foil said valve metal second layer;

forming on said valve metal second layer a second dielectric layer;

making a free surface of said second dielectric layer formed on said valve metal second layer on said metal foil carry powder of said organic semiconductor by compression bonding; and

forming a solid electrolyte layer comprised of said organic semiconductor sandwiched between said second dielectric layer formed on said valve metal second layer on said metal foil and said first

dielectric layer and closely bonded to the two by thermo compression bonding of organic semiconductor powder carried by compression bonding on said dielectric layer through said metal foil.

4. A method of formation of a capacitor as set forth in claim 3, further forming on said bottom electrode layer a plurality of parallel first dielectric layers and integrally forming on each of the individual first dielectric layers a solid electrolyte layer comprised of an organic semiconductor, a second dielectric layer comprised of an oxide of at least one type of valve metal selected from said above group, a second layer of at least one type of valve metal selected from the above group, and a top electrode layer comprised of metal on top.

5. A method of formation of a capacitor as set forth in any one of claims 1 to 4, wherein the organic semiconductor forming said solid electrolyte layer is a TCNQ complex.

6. A capacitor formed by a method as set forth in any one of claims 1 to 4.

7. A method of production of a circuit board including a method of formation of a capacitor as set forth in any one of claims 1 to 4.

8. A circuit board produced by the method of claim 7.